CLAIMS

We claim:

1. (Currently amended) A polymer electrolyte comprising:

a modified [[halogen]] chlorine containing polymer having an enhanced [[halogen]] chlorine level relative to a [[halogen]] chlorine content of an unmodified [[halogen]] chlorine containing polymer formed from polymerization of its monomer;

a salt of an alkali metal; and

an aprotic solvent,

wherein said polymer electrolyte comprises a solid homogeneous material formed by dissolving said salt, said aprotic solvent and said modified polymer material in a common solvent to form a homogeneous solution, and drying said homogeneous solution to remove said common solvent ~~said salt, said aprotic solvent are integrated with said modified polymeric material as a homogeneous material~~.

2. Cancelled.

3. (Currently amended) The polymer electrolyte of claim [[2]] 1, wherein said chlorine containing polymer is polyvinylchloride (PVC).

4. (Previously presented) The polymer electrolyte of claim 1, wherein a lithium ion conductivity of said polymer electrolyte at 25 C is between 0.01 S/cm^2 and .108 S/cm^2 .

5. (Previously presented) The polymer electrolyte of claim 1, wherein a lithium ion conductivity of said polymer electrolyte at 25 C is between 0.066 S/cm^2 and .108 S/cm^2 .

6. (Currently amended)The polymer electrolyte of claim 1, wherein said modified chlorine containing polymer[[ic material]] comprises C-PVC, said C-PVC having 60-72 wt % chlorine.

7. (Original)The polymer electrolyte of claim 6, wherein said polymer electrolyte comprises 10-40 wt % of said C-PVC.

8. (Original)The polymer electrolyte of claim 1, wherein said alkali metal salt is at least one selected from the group consisting of $LiClO_4$, $LiBF_4$, $LiAsF_6$, $LiPF_6$, $LiCF_3SO_3$ and $LiN(CF_3SO_2)_2$.

9. (Currently amended)The polymer electrolyte of claim 1, wherein said polymer electrolyte comprises from 3-20 wt % of said salt of an alkali metal.

10. (Original)The polymer electrolyte of claim 1, wherein as said aprotic solvent is at least one selected from the group consisting of propylene carbonate, ethylene carbonate, dimethyl carbonate, gamma-butyrolactone, 1,3-dioxolane and dimethoxyethane.

11. (Original)The polymer electrolyte of claim 1, wherein said polymer electrolyte comprises 40-82 wt % of said aprotic solvent.

12. (Currently amended) A rechargeable battery, comprising:

an anode containing an alkali metal;

a cathode; and

a polymer electrolyte formed from a modified [[halogen]] chlorine containing polymer having an enhanced [[halogen]] chlorine level relative to a [[halogen]] chlorine content of an unmodified [[halogen]] chlorine containing polymer formed from polymerization of its monomer, a salt of an alkali metal; and an aprotic solvent, wherein said wherein said polymer electrolyte comprises a solid homogeneous material formed by dissolving said salt, said aprotic solvent and said modified polymer material in a common solvent to form a homogeneous solution, and drying said homogeneous solution to remove said common solvent ~~said salt, said aprotic solvent are integrated with said modified polymeric material as a homogeneous material~~.

13. (Currently amended) The rechargeable battery of claim 12, wherein said unmodified [[halogen]] chlorine containing polymer comprises at least one chlorine containing polymer.

14. (Currently amended)The rechargeable battery of claim 13, wherein said modified halogen containing polymer[[ic material]] comprises chlorinated polyvinylchloride (C-PVC).

15. (Original)The rechargeable battery of claim 12, wherein in said anode comprises lithium.

16. (Previously presented) The rechargeable battery of claim 12, wherein a lithium ion conductivity of said polymer electrolyte at 25 C is between 0.01 S/cm^2 and .108 S/cm^2.

17. (Currently amended) The rechargeable battery of claim 16, wherein a lithium ion conductivity of said polymer electrolyte at 25 C is between 0.066 S/cm^2 and .108 S/cm^2.

18. (Previously presented) The rechargeable battery of claim 12, wherein said anode comprises a lithium-ion intercalation material.

19. (Original)The rechargeable battery of claim 12, wherein said cathode comprises a metal oxide.

20. (Original)The rechargeable battery of claim 12, wherein said cathode comprises a lithium-transition metal oxide.

21. (Original)The rechargeable cell of claim 12, wherein said cathode is at least one selected from the group consisting of MnO_2, $LiMn_2O_4$ and vanadium oxides (V_xO_y).

22. (Original)The rechargeable cell of claim 12, wherein said cathode comprises a organic polymer.

23. (Original)The rechargeable cell of claim 12, wherein said cathode is at least one selected from the group consisting of polyviologen, polyacetylene and polypyrrole.

24. (Original) The rechargeable cell of claim 12, wherein said cathode comprises a sulfur containing material.

25. (Original) The rechargeable cell of claim 12, wherein said cathode is at least one selected from the group consisting of TiS_2, S, polysulphide and polythiophene.

26-36 (Cancelled)